

are as described in Crawford et al. (supra). Transformants are purified and analyzed for expression of the expandase enzyme by testing their capacity to produce adipoyl-7-ADCA as described by Crawford et al. (supra).

DEPR:

Adipoyl-7-ADCA producing transformants as for instance P. chrysogenum strain PC100, deposited with the ATCC under number 74185 are inoculated at 2.106 conidia/ml into a seed medium consisting of (g/l) glucose, 30; Pharmamedia (cotton seed meal), 10; Corn Steep Solids 20; (NH.sub.4).sub.2 SO.sub.4, 20; CaCO.sub.3, 5; KH.sub.2 PO.sub.4, 0.5; lactose, 10; yeast extract, 10 at a pH before sterilisation of 5.6

CLPV:

a) culturing a recombinant Penicillium chrysogenum strain in a culture medium containing phenylacetic acid, or a salt or ester;

CLPV:

b) recovering phenylacetyl-7-ADCA from the culture medium; wherein said recombinant Penicillium chrysogenum strain is altered to contain the Streptomyces clavuligerus expandase gene, under the transcriptional and translational regulation of fungal expression signals, and said expandase gene encodes an expandase that can expand penicillin G to phenylacetyl-7-ADCA.

ORPL:

Cantwell et al., "Cloning and expression of a hybrid Streptomyces clavuligerus ce.function.E gene in Penicillium chrysogenum," Curr Genet 17:213-221 (1990).